Falcon (NORCO) - Review of 2007 Remedial Investigation Preliminary Data

Rafael Casanova to: Gloria-Small Moran 05/10/2010 02:37 PM

Cc: Christopher Ruhl, Gary Moore, Carlos Sanchez, Kenneth Shewmake, Anna Milburn

Gloria, as you requested, following is the information obtained from the review of Falcon's 2007 Remedial Investigation (RI) preliminary data.

The attached map, provided by Superior Oil ("Superior Crude Map.pdf"), was used to determine the RI sample locations that correspond to the area impacted by Superior's 2010 spill. The information reviewed is only preliminary data. The RI field investigation has not been completed and human health/ecological screening risk evaluations and baseline risk assessments must still be performed. The data has not been thoroughly reviewed for useability and I am not certain that we have the complete data sets; therefore, these data should not be used in making any final determinations about the constituents of concern at the Site. The determinations of whether constituents exceeded risk screening levels, included in the following summary, were taken from the information provided by NORCO and have not been verified by the EPA for completeness or accuracy.

Vinyl acetate, a constituent of the recycled mineral spirits classed as a spent solvent and historically stored/processed at the Site, was not detected in the ground water, soils, or sediments within the area impacted by the Superior spill.

Almost all of the twenty-four metals included in the Field Sampling Plan were detected in the ground water, soil, and sediment samples (Note: only the metals that exceeded screening levels are included in the following summary). Any determinations cannot be made about these media until all inorganic background data are collected and statistically analyzed. Generally, all metals are naturally occurring in ground water, soils, and sediments, and most are naturally occurring in crude oil (some in trace amounts) and the associated produced waters. Additionally, most of these metals are included in the "Skinner List" of constituents applicable to petroleum refining.

Several organics were detected in the ground water, soil, and sediment samples. Several of these organics are naturally occurring in crude oil and are also included in the "Skinner List" of constituents applicable to petroleum refining.

The distinction of whether a constituent is naturally occurring in crude oil or included in the "Skinner List" may provide justification for previous comments on Superior's Draft Work Plan (dated April 5, 2010) concerning the sampling and analyses for VOCs, SVOCs, and metals.

Following is a summary of the preliminary RI data for Areas of Concern (AOC) 1 (Refinery Tank Battery Area) and 3 (Wetlands [termed "Duck Pond" in Superior's Work Plan]) which were impacted by Superior's spill.

****

AOC 1 Tank Battery Area (Shallow Ground Water)

Arsenic, Copper, and Lead exceeded the ground water screening levels. Arsenic, Copper, and Lead (trace amounts) are naturally occurring in crude oil. Arsenic and Lead are included in the "Skinner List" of constituents applicable to petroleum refining.

Acetone, a common laboratory contaminant detected in the samples with a "J" qualifier (estimated), was also detected in the associated Trip Blank, indicating that the samples may have been contaminated from a source outside the sample area. Further evaluation during the RI will probably eliminate this constituent from further consideration in the screening risk assessments.

Cyclohexane and 1-Phenylethanol were detected in the ground water with a "J" qualifier (estimated). Cyclohexane is naturally occurring in crude oil.

The detection limits exceeded the screening levels for 1,1,2,2-Tetrachloroethane, 1,2,3-Trichloropropane, 1,2-Dibromoethane (synonym - Ethylene Dibromide), and 1,4-Dioxane. These constituents may be present in the ground water at concentrations below the reported detection limits; therefore, they are considered to be present at their respective detection limits, based on the data reduction guidelines for the Falcon screening risk evaluation. 1,4-Dioxane and Ethylene Dibromide are included in the "Skinner List" of constituents applicable to petroleum refining.

Following is a summary of the constituents that exceeded screening levels or detection limits and those that were detected in the ground water at four monitoring well locations within the area impacted by the Superior spill. The map file "Map AOC 1S GW.pdf" shows the temporary monitoring well locations. The files "T19987.pdf", and "AOC 1 - Constituents Table.pdf" list the analytical sample results for the ground water in AOC 1 (Note: The FR-# is the client-specific Sample ID Number shown in the raw data files, tables, and figures).

TW01-37 (T19987-13 (FR-121]):

Arsenic > Region 6 human health MSSL.

Copper and Lead > marine screening levels.

Detected Acetone (J), Cyclohexane (J), and 1-Phenylethanol (J).

TW01-38 (T19987-10 [FR-118]):

Arsenic > Region 6 human health MSSL and TCEQ screening levels.

Copper and Lead > marine screening levels.

Detected Acetone (J).

TW01-39 (T19987-7 [FR-115]):

Lead > marine screening level.

Detected Acetone (J).

Detection limits exceeded screening levels for 1,1,2,2-Tetrachloroethane, 1,2,3-Trichloropropane, 1,2-Dibromoethane (synonym - Ethylene Dibromide), and 1,4-Dioxane.

TW01-40 (T19987-4 [FR-112]):

Detected Acetone (J).

****

AOC 1 Tank Battery Area (Surface and Subsurface Soils)

Aluminum, Arsenic, Chromium, and Vanadium exceeded the soil screening levels. Arsenic, Chromium, and Vanadium are naturally occurring in crude oil and are included in the "Skinner List" of constituents applicable to petroleum refining.

Acetone, Bis(2-Ethylhexyl)phthalate, Diethylphthalate, and Methylene Chloride, common laboratory contaminants detected in the samples with a "J" qualifier (estimated), are considered present in the soils at this point in the RI, except Acetone, since these constituents were not detected in any Method or Trip

Blanks. Further evaluation during the RI will probably eliminate these constituents from further consideration in the screening risk assessments.

Acenaphthene; Anthracene; Carbazole; Carbon Disulfide; Chrysene; Dibenzofuran; Fluorene; Phenanthrene; 1,2,4-Trimethylbenzene; Isopropylbenzene; p-Isopropyltoluene; Toluene, and Xylene were detected in the soils with a "J" qualifier (estimated). Acenaphthene; Anthracene; Carbazole compounds; Carbon Disulfide; Chrysene; Fluorene; Phenanthrene; 1,2,4-Trimethylbenzene; Isopropylbenzene; Toluene, and Xylene are naturally occurring in crude oil. Acenaphthene, Anthracene, Carbon Disulfide, Chrysene, Fluorene, Phenanthrene, Toluene, and Xylene are included in the "Skinner List" of constituents applicable to petroleum refining.

The detection limits exceeded the screening levels for Barium; Benzo(a)pyrene; Dibenzo(a,h)anthracene; 1,2,3-Trichloropropane; 7,12-Dimethylbenz(a)anthracene; N-Nitroso-di-n-propylamine; Quinoline; Chromium; Selenium; and Vanadium. These constituents may be present in the soil at concentrations below the reported detection limits; therefore, they are considered to be present at their respective detection limits, based on the data reduction guidelines for the Falcon screening risk evaluation. Benzo(a)pyrene, Chromium, Dibenzo(a,h)anthracene, Quinoline, and Vanadium are naturally occurring in crude oil. Barium, Benzo(a)pyrene Dibenzo(a,h)anthracrene, Quinoline, Chromium, Selenium, and Vanadium are included in the "Skinner List" of constituents applicable to petroleum refining.

Following is a summary of the constituents that exceeded screening levels or detection limits and those that were detected in the soils at eleven locations within the area impacted by the Superior spill. The map file "Map AOC 1S Soil.pdf" shows the soil sample locations. The files "T19891.pdf", T19944.pdf", "T19964.pdf", "T19987.pdf", and "AOC 1 - Constituents Table.pdf" list the analytical sample results for the soils in AOC 1.

J-22 S (T19891-3 [FR-056A] [FR-057, T19891-4 Duplicates], and T19891-5 [FR-058]):

Arsenic > Region 6 human health MSSL.

Chromium and Vanadium > ecological screening levels.

Detected Acetone (J) (including Trip Blank), 1,2,4-Trimethylbenzene (J), Isopropylbenzene (J), Xylene (J), and Bis(2-Ethylhexyl)phthalate (J).

Detection limits exceeded screening levels for 1,2,3-Trichloropropane, 7,12-Dimethylbenz(a)anthracene, Dibenzo(a,h)anthracene, N-Nitroso-di-n-propylamine, Quinoline, Chromium, and Vanadium.

J-23 S (T19891-1 [FR-054], and T19891-2 [FR-055]):

Aluminum > TCEQ screening level.

Arsenic > MSSL.

Detected Acetone (including Trip Blank), Acenaphthene (J), Anthracene (J), Carbazole (J), Chrysene (J), Dibenzofuran (J), Fluorene (J), Phenanthrene (J), and Toluene (J).

Detection limits exceeded screening levels for 1,2,3-Trichloropropane, Benzo(a)pyrene, 7,12-Dimethylbenz(a)anthracene, Dibenzo(a,h)anthracene, N-Nitroso-di-n-propylamine, Quinoline, Chromium, and Vanadium.

J-28 S (T19891-14[FR-067], and T19891-15 [FR-068]):

Aluminum > TCEQ screening level.

Arsenic > Region 6 MSSL.

Detected 1,2,4-Trimethylbenzene (J), Isopropylbenzene (J), p-Isopropyltoluene (J), Xylene (J), and Bis(2-Ethylhexyl)phthalate (J).

Detection limits exceeded screening levels for 1,2,3-Trichloropropane, 7,12-Dimethylbenz(a)anthracene, Benzo(a)pyrene, Dibenzo(a,h)anthracene, N-Nitroso-di-n-propylamine, Quinoline, Chromium, and Vanadium.

J-29 S (T19944-8 [FR-092], and T19944-9 [FR-093]):

Aluminum > TCEQ screening level.

Arsenic > Region 6 MSSL.

Detected Acetone (J) (including Trip Blank), Diethylphthalate (J), and Methylene Chloride (J).

Detection limits exceeded screening levels for 1,2,3-Trichloropropane, 7,12-Dimethylbenz(a)anthracene, Benzo(a)pyrene (in crude oil), Dibenzo(a,h)anthracene, N-Nitroso-di-n-propylamine, Quinoline, Chromium, and Vanadium.

J-30 S (T19944-10 [FR-094], and T19944-11 [FR-095]):

Aluminum > TCEQ screening level.

Arsenic > Region 6 MSSL.

Detected Acetone (J) (including Trip Blank), Carbon Disulfide (J), and Methylene Chloride (J).

Detection limits exceeded screening levels for 1,2,3-Trichloropropane, Chromium, Selenium, and Vanadium.

J-31 S (T19964-1[FR-099A] [T19964-2 [FR-100] Duplicates], and T19964-3[FR-101]):

Aluminum > TCEQ screening level.

Arsenic > Region 6 MSSL.

Detected Acetone (J) (including Trip Blank), 1,2,4-Trimethylbenzene (J), and Toluene (J).

Detection limits exceeded screening levels for 1,2,3-Trichloropropane, Chromium, and Vanadium.

J-32 S (T19944-12 [FR-096], and T19944-13 [FR-097]):

Aluminum > TCEQ screening level.

Arsenic > Region 6 MSSL.

Detected Methylene Chloride (J).

Detection limits exceeded screening levels for 1,2,3-Trichloropropane, Chromium, and Vanadium.

J-37 S (T19987-11 [FR-119], and T19987-12 [FR-120]):

Aluminum > TCEQ screening level.

Arsenic > Region 6 MSSL.

Detected Acetone (J) (including Trip Blank), Carbon Disulfide (J), and Methylene Chloride (J).

Detection limits exceeded screening levels for 1,2,3-Trichloropropane, Barium, Chromium, and Vanadium.

J-38 S (T19987-8 [FR-116], and T19987-9 [FR-117]):

Aluminum > TCEQ screening level.

Arsenic > Region 6 MSSL.

Detected Acetone (J) (including Trip Blank) and Carbon Disulfide (J).

Detection limits exceeded screening levels for 1,2,3-Trichloropropane, Barium, Chromium, and Vanadium.

J-39 S (T19987-5 [FR-113], and T19987-6 [FR-114]):

Arsenic > Region 6 MSSL.

Detected Acetone (J) (including Trip Blank).

Detection limits exceeded screening levels for 1,2,3-Trichloropropane, Chromium, and Vanadium.

J-40 S (T19987-1 [FR-109], and T19987-2 [FR-110A] [FR-111, T19987-3 Duplicates]):

Aluminum > TCEQ screening level.

Arsenic > Region 6 MSSL.

Detected Acetone (J) (including Trip Blank) and Carbon Disulfide (J).

Detection limits exceeded screening levels for 1,2,3-Trichloropropane, Chromium, and Vanadium.

****

AOC 3 Wetland Area (Sediments)

Arsenic exceeded the soil screening level. Arsenic is naturally occurring in crude oil and is included in the "Skinner List" of constituents applicable to petroleum refining.

Acetone, a common laboratory contaminant detected in the samples with a "J" qualifier (estimated), was also detected in the associated trip blank, indicating that the samples may have been contaminated from a source outside the sample area. Further evaluation during the RI will probably eliminate this constituent from further consideration in the screening risk assessments.

The detection limits exceeded the screening levels for Acenaphthene, Acenaphythylene, Anthracene, Dibenzo(a,h)anthracene, Fluorene, and Hexachlorobutadiene. These constituents may be present in the soil at concentrations below the reported detection limits; therefore, they are considered to be present at their respective detection limits, based on the data reduction guidelines for the Falcon screening risk evaluation. Acenaphthene, Acenaphythylene, Anthracene, Dibenzo(a,h)anthracene, and Fluorene are naturally occurring in crude oil. These constituents, except Acenaphythylene, are included in the "Skinner List" of constituents applicable to petroleum refining.

Following is a summary of the constituents that exceeded screening levels or detection limits and those that were detected in the sediments at two locations within the area impacted by the Superior spill. The map file "Map AOC 3 Wetland Sediment.pdf" shows the soil sample locations. The files "T20073.pdf" and "AOC 3 - Constituents Table.pdf" list the analytical sample results for the sediments in AOC 3.

G-27 SD (T20073-1 [FR-141]):

Arsenic > Region 6 MSSL.

Detected Acetone (J).

Detection limits exceeded screening levels for Acenaphthene, Acenaphythylene, Anthracene, Dibenzo(a,h)anthracene, Fluorene, and Hexachlorobutadiene.

G-28 SD (T20073-2 [FR-142A] [T20073-3 [FR-143] Duplicates]):

Arsenic > Region 6 MSSL.

Detection limits exceeded screening levels for Acenaphthene, Acenaphythylene, Anthracene, Dibenzo(a,h)anthracene, Fluorene, and Hexachlorobutadiene.

Rafael Casanova, P.G. (Remedial Project Manager, Environmental Scientist)
U.S. Environmental Protection Agency, Region 6
Superfund Division (6SF-RA)
1445 Ross Avenue, Suite 1200
Dallas, TX 75202-2733

Work Telephone # - (214) 665-7437
Work Telephone Toll-Free # - 1(800) 533-3508
Cellular Telephone # - (817) 832-8209
Facsimile # - (214) 665-6660
E-Mail - casanova.rafael@epa.gov

Assigned Sites for Investigation and Remediation (http://www.epa.gov/earth1r6/6sf/6sf-tx.htm):
Brine Service Company Superfund Site (Corpus Christi, Texas)
Falcon Refinery Superfund Site (Ingleside, Texas)
Many Diversified Interests, Inc. Superfund Site (Houston, Texas)